

A radio frequency identification (RFID) system includes a reader capable of reading data of each RFID device without data collision when a number of contactless smart cards and RFID tags within a radio frequency field and an RFID tag. And, method for preventing data collision in the RFID system includes the steps of transmitting a carrier signal of a predetermined frequency from an RFID reader; determining whether the amplitude of the transmitted carrier signal is modulated; transmitting a first gap signal; first checking whether a tag responsive to a reader signal exists within a read range and reading an initial response of a card; if the tag exists within the tag read range, second checking whether the initial response of the card read leads to data collision; if the initial response does not lead data collision, reading the data stored at memory of the tag with a predetermined protocol; verifying the format of the read data is verified; and if the verified format is valid, generating a second gap signal to notify that data transfer is complete and then repeating the steps from the step of first checking for another card.